

## TITLE 13. CALIFORNIA AIR RESOURCES BOARD

### **NOTICE OF PUBLIC HEARING TO CONSIDER FOLLOW-UP AMENDMENTS TO THE CALIFORNIA PHASE 3 REFORMULATED GASOLINE REGULATIONS**

The Air Resources Board (ARB or Board) will conduct a public hearing at the time and place noted below to consider follow-up amendments to the California Phase 3 Reformulated Gasoline (CaRFG3) regulations. The proposed amendments would establish specifications for denatured ethanol intended for blending into gasoline, establish a CARBOB model and make other changes regarding blending ethanol into gasoline, establish a mechanism under which a small refiner could alter its production of diesel fuel to provide offsets of excess emissions from gasoline subject to the small refiner CaRFG3 standards, and make various other changes.

Date: November 16, 2000

Time: 9:30 a.m.

Place: Air Resources Board  
Board Hearing Room, Lower Level  
2020 L Street  
Sacramento, California

This item will be considered at a two-day meeting of the Board, which will commence at 9:30 a.m., on November 16, 2000, and may continue at 8:30 a.m., on November 17, 2000. This item may not be considered until November 17, 2000. Please consult the agenda for the meeting, which will be available at least 10 days before November 16, 2000, to determine the day on which this item will be considered.

This facility is accessible to persons with disabilities. If accommodation is needed, please contact ARB's Clerk of the Board by November 2, 2000, at (916) 322-5594, or Telecommunications Device for the Deaf (TDD) (916) 324-9531, or (800) 700-8326 for TDD calls for outside the Sacramento area, to ensure accommodation.

### **INFORMATIVE DIGEST OF PROPOSED ACTION/PLAIN ENGLISH POLICY STATEMENT OVERVIEW**

#### **Proposed Actions and Sections Affected**

Proposed amendments to sections 2260, 2261, 2262.3, 2262.5, 2264, 2266.5, 2270, 2272, 2282, 2296 and 2297, and adoption of section 2262.9, title 13, California Code of Regulations (CCR). Adoption of the "Procedures for Using the California Model for California Reformulated Blendstock for Oxygenate Blending (CARBOB)," incorporated by reference in section 2266.5(a)(2)(B)1., title 13, CCR.

## Background

**The existing CaRFG regulations.** The Phase 2 CaRFG (CaRFG2) regulations were adopted by the Board following a hearing in November 1991, and became applicable in the spring of 1996. The regulations established a comprehensive set of standards for gasoline designed to achieve the maximum feasible reductions in emissions of criteria pollutants and toxic air contaminants from gasoline-powered motor vehicles. The standards cover sulfur, benzene, olefin, oxygen, and aromatic hydrocarbon contents, the 50-percent and 90-percent distillation temperatures (T50 and T90), and summertime Reid vapor pressure (RVP).

At a December 9, 1999, hearing, the Board approved standards for CaRFG3, which gasoline producers and importers must meet starting December 31, 2002. The most prominent feature of the CaRFG3 standards was the prohibition of gasoline containing methyl tertiary-butyl ether (MTBE) – an oxygenate used in most California gasoline since 1996. Following an extensive study by University of California researchers, Governor Gray Davis had made a finding in March 1999, that there are significant risks and costs associated with water contamination from MTBE in the state's gasoline. MTBE is highly soluble in water and will transfer faster and travel farther and more easily than other gasoline constituents such as benzene when gasoline leaks from underground storage tanks or pipelines; it also degrades more slowly. The CaRFG3 standards also reflected changes from the CaRFG2 standards for several of the regulated gasoline properties. These changes were designed to maintain the emission and air quality benefits of the CaRFG2 standards while increasing refinery flexibility in producing complying gasoline without the use of MTBE.

The primary elements of both the CaRFG2 and CaRFG3 standards are sets of limits – referred to here as refiner limits – that apply to gasoline when it is first supplied from the production facility (typically a refinery) or import facility. These standards also include sets of “cap limits” that apply throughout the gasoline distribution system and are less stringent than the refiner limits.

With the exception of RVP and oxygen content, the regulations provide three compliance options for meeting the refiner limits. One option is to have the gasoline subject to either a “flat limit,” set forth in the regulations which must be met by every gallon of gasoline leaving the refinery, or a specified “averaging limit.” The averaging limits for each of the six properties are numerically more stringent than the comparable flat limits. Under averaging, a batch of gasoline with a designated alternative limit above the averaging limit must be offset by other batches with designated alternative limits below the averaging limit.

The CaRFG regulations also contain a second compliance mechanism under which a refiner may use a Phase 2 or 3 CaRFG “Predictive Model” to identify alternative flat and averaging limits applicable when gasoline is supplied from the refinery. The Predictive Model consists of mathematical equations which predict the changes in exhaust

emissions of hydrocarbons, oxides of nitrogen (NO<sub>x</sub>), and potency weighted toxics for four toxic air contaminants in the exhaust of gasoline-powered vehicles. An alternative gasoline formulation is acceptable if there will be essentially no increase in emissions of hydrocarbons, NO<sub>x</sub>, and potency-weighted toxics under the Predictive Model.

Currently, most of the gasoline sold in California complies with the CaRFG2 regulations through the use of the Predictive Model. The third compliance option in the CaRFG regulations allows for certification of alternative gasoline formulations based on the results of vehicle emission testing.

Gasoline oxygen content is regulated somewhat differently from the other properties in that there are both minimum and maximum oxygen content standards. Oxygen is added to gasoline by blending in an oxygenate such as MTBE or ethanol. While the CaRFG2 oxygen standard is 1.8 to 2.2 percent by weight, producers and importers may use the Predictive Model to vary the applicable limit. The oxygen content may be as low as zero percent or as high as 3.5 wt. percent when the Predictive Model is used. Since adding oxygen to gasoline will reduce emissions of carbon monoxide (CO) from most vehicles now on the road, the CaRFG regulations require a minimum oxygen content of 1.8 wt. percent in the Los Angeles, Orange, Ventura, San Bernardino, Riverside and Imperial Counties in the winter months when the highest CO concentrations are experienced. California is conditionally mandated by section 211(m) of the federal Clean Air Act (FCAA) to maintain a wintertime oxygen requirement in all of these counties except Imperial.

**Comparable Federal Regulations.** Pursuant to the 1990 amendments to the FCAA, the U. S. Environmental Protection Agency (U.S. EPA) has adopted federal RFG regulations that apply in San Diego County, the greater Los Angeles area (Los Angeles, Orange and Ventura Counties, and parts of Riverside and San Bernardino Counties), and the greater Sacramento area (Sacramento County and parts of Yolo, Solano, Sutter, Placer, and El Dorado Counties). Together, these areas make up about 70 percent of the state's gasoline market. Both the federal and state RFG regulations apply in those areas. To avoid unnecessary duplication of the enforcement requirements, in 40 C.F.R. section 80.81, the U.S. EPA exempted California producers from many of the federal enforcement requirements.

The oxygen requirements in the federal RFG and CaRFG programs differ considerably. The FCAA requires a minimum 2.0 wt. percent oxygen requirement year-round, even when it is not needed to avoid exceedances of the ambient CO standards and formulations with less or no oxygen can achieve equivalent reductions in emissions of hydrocarbons and toxics. Thus because of federal law, California refiners must comply with the federal minimum oxygenate requirement in 70 percent of California's gasoline. For the remaining 30 percent of the state's gasoline, refiners have the flexibility to produce gasoline without oxygen if they choose, as long as minimum emissions performance required by the CaRFG regulations are met. In April 1999, Governor Davis asked the U.S. EPA to issue a waiver of the oxygenate requirement under a waiver provision in the federal law, and the ARB has furnished U.S. EPA with

substantial analyses supporting the waiver. Nevertheless, U.S. EPA has to date failed to act on the request.

### **Proposed Amendments**

Although the Board was able to address most CaRFG3 issues at the December 1999 hearing, a few had to be deferred and will be addressed in this rulemaking.

**Specifications for denatured ethanol.** With the elimination of MTBE in California gasoline, the use of ethanol will become much more widespread, particularly if the federal government does not eliminate the mandate that 70 percent of California's gasoline contain at least 2.0 wt. percent oxygen. However, even with relief from the federal requirement, refiners are expected to use substantial amounts of ethanol both to meet the state requirement for oxygen in wintertime gasoline in much of Southern California and to increase octane. In the original CaRFG3 rulemaking, staff proposed specifications for denatured ethanol intended for use in California gasoline. The specifications were designed to assure a more uniform product with blending characteristics that would assist refiners in the challenging task of meeting the CaRFG3 standards and to help enable the ethanol blending requirements be streamlined. Since ethanol producers commented that some of the proposed specifications were too stringent in light of ethanol production processes and the characteristics of denaturants being used, the Board directed staff to work with interested parties and come back with a proposal for consideration at a later date.

After several workshops and exchanges of information, the staff is now proposing the following limits for denatured ethanol intended for use in California gasoline: a sulfur content of 10 parts per million, benzene content of 0.06 volume percent, olefin content of 0.5 volume percent, and aromatic hydrocarbon content of 1.7 volume percent. Sulfur content would be determined by ASTM D 5453-93. The benzene, olefin, and aromatic hydrocarbon content would be determined by analyzing the concentration of those compounds in the denaturant and then multiplying the result by 0.048. Staff is also proposing benzene, olefin and aromatic hydrocarbon limits for denaturants equal to the CaRFG3 cap limits. Persons transferring denatured ethanol intended for use in California gasoline would have to provide documentation stating that it complies with the applicable standards, and providing the name of the transferor, the facility where the ethanol was produced, the person who produced the ethanol and added the denaturant, and the nature and source of the denaturant.

**Provisions pertaining to "CARBOB."** When gasoline is oxygenated with ethanol, certain characteristics of the resulting blend make it generally infeasible to be transported through pipeline systems. Because of this, ethanol is typically added to gasoline at the terminal or in the delivery truck. The CaRFG regulations allow a refiner to ship non-oxygenated gasoline from the refinery without complying with the CaRFG standards if it is specially formulated to be combined with oxygenate "downstream" from the refinery and the resulting blend will meet all of the CaRFG standards. This allows

entities adding oxygen downstream from the refinery to take advantage of the contribution the oxygenate can make to complying with the CaRFG standards, particularly by diluting the concentration of compounds like benzene. The nonoxygenated blend is called “California reformulated gasoline blendstock for oxygenate blending,” or “CARBOB.”

Under the existing regulations, compliance of CARBOB with the CaRFG standards is determined by adding the appropriate level of oxygenate to a sample of CARBOB and comparing the results to the applicable CaRFG limits. A producer is required to conduct such tests and notify the ARB prior to supplying a final blend of CARBOB from the refinery. Whenever the CARBOB is transferred, it must be accompanied by a document identifying the oxygenate type or types and amount or range of amounts that must be added before the CARBOB is supplied from the final distribution facility.

The proposed amendments would establish a new “CARBOB Model” which would be used in connection with limits directly applicable to the CARBOB. The CARBOB model would serve as a preprocessor for the Predictive Model. The properties of the CARBOB would be used to calculate the expected properties of the finished blend. These finished blend properties would then be entered into the Predictive Model to see if the CARBOB properties result in a qualifying fuel. A refiner would have the option to use the CARBOB Model mechanism, in which case the refiner would be able to simply sample and analyze the CARBOB before it is supplied from the refinery, without having to hand-blend the ethanol into the CARBOB before analyzing the properties. However, ARB inspectors would have the option of hand-blending the CARBOB with ethanol and testing the blend.

Normally, in determining compliance the properties of the denatured ethanol would be assumed to be in the expected range reflecting the proposed specifications for denatured ethanol. But producers and imports would have the option of specifying a “cleaner” range of properties, in which case the range would have to be included in product transfer documentation and the ultimate oxygen blender would be responsible to use denatured ethanol with the specified properties.

The amendments would also add cap limits for CARBOBs designed for the three most common ranges of ethanol. These cap limits could be enforced throughout the distribution system.

The proposal would also change the current prohibition of combining CARBOB that has been shipped from the refinery with any other CARBOB, gasoline, blendstock or oxygenate, except for the oxygenate for which the CARBOB was designed, or other CARBOB for which the refiner has designated the same type and amount or range of oxygenate. Combining CARBOBs designed for different ethanol levels in a storage tank at a terminal or bulk plant would be permitted if it was part of a transition to a new type of CARBOB and certain criteria are met, including a requirement that the batch of the new CARBOB being added have a reduced sulfur content. Combining CARBOB with

California gasoline in a storage tank at a terminal or bulk plant would also be permitted if specified conditions are met. One condition would be that the resulting blend of product in the tank could only be supplied from the terminal or bulk plant when it was not subject to the RVP standards.

**Providing offsets for excess emissions from small refiner CaRFG3.** In the CaRFG3 rulemaking, the Board included small refiner CaRFG3 standards with less stringent flat limits for benzene and aromatics content, T50, and T90. A small refiner may only use the small refiner CaRFG3 standards, however, if it offsets the excess emissions with changes to its diesel fuel produced pursuant the ARB's regulation limiting the aromatic hydrocarbon content. The CaRFG3 regulations identify the excess emissions of hydrocarbons, NOx, and potency-weighted toxics on a per-barrel basis that must be offset, but the Board deferred establishment of the diesel fuel offset provisions until this rulemaking. A small refiner may only use the small refiner CaRFG3 standards if it produced gasoline meeting CaRFG2 standards in 1998 and 1999; Kern Oil and Refining Co. (Kern Oil) is the only refiner to meet this criterion.

The diesel aromatics regulation includes a basic aromatic hydrocarbon standard of 10 vol. percent, with a 20 vol. percent standard for small refiners, applicable to the small refiner's annual "exempt volume" (additional diesel fuel produced by the small refiner in the year is subject to the 10 percent aromatics standard). The regulation also includes a mechanism under which a refiner may certify an "alternative formulation" shown by an engine test program to achieve emissions reductions equivalent to a 10 percent aromatics diesel fuel (20 percent for small refiners).

The amendments proposed by staff would provide a small refiner with three options in producing diesel fuel in a manner that offsets the excess emissions from gasoline subject to the small refiner CaRFG3 standards in a particular year. First, the small refiner can accept a smaller annual exempt volume of diesel fuel subject to the 20 percent aromatics standard – in the case of Kern Oil, the equivalent of 2,263 barrels per day in place of 6,405 barrels per day. Second, the refiner can produce up to its annual exempt volume of diesel fuel, but subject to standards more stringent than a 20 percent aromatics standard. Third, the small refiner could opt for an exempt volume augmented by 25 percent, if emissions are reduced enough to offset emissions from the small refiner's gasoline and the augmentation of the volume. The small refiner would also have the option to use these mechanisms prior to December 31, 2002.

**Other amendments.** The staff is also proposing several additional amendments that would make minor changes to the CaRFG regulations, including reducing the applied reproducibility of automated RVP test methods, clarifying the method for sampling gasoline, correcting provisions on transitions to the winter oxygenates season for low-throughput stations, and clarifying that racing gasoline is not subject to the detergent additives requirements.

## **AVAILABILITY OF DOCUMENTS AND AGENCY CONTACT PERSON**

The Board staff has prepared a Staff Report: Initial Statement of Reasons (ISOR) for the proposed regulatory action, which includes the full text of the proposed regulatory language and a summary of the environmental and economic impacts of the proposal, if any. Copies of the ISOR may be obtained from the Public Information Office, Air Resources Board, 2020 L Street, Sacramento, California 95814, (916) 322-2990, at least 45 days prior to the scheduled hearing. To obtain the Staff Report in an alternative format, please contact the Air Resources Board's Americans with Disabilities Act Coordinator at (916) 323-4916, TDD (916) 324-9531, or (800) 700-8326 for TDD calls from outside the Sacramento area. This notice, the ISOR, and all subsequent regulatory documents are being made available on the ARB Internet site for this rulemaking, <http://www.arb.ca.gov/regact/carfg300/carfg300.htm>.

The Board staff has compiled a record which includes all information upon which the proposal is based. This material is available for inspection upon request to the agency contact person identified immediately below.

The ARB has determined that it is not feasible to draft the regulation amendments in plain English due to the technical nature of the regulation; however, a plain English summary of the proposed regulation is available from the agency contact person named below, and is also contained in the ISOR for this regulatory action.

Further inquiries regarding this matter should be directed to agency contact person, Mr. Dean C. Simeroth, Chief, Criteria Pollutants Branch, Stationary Source Division, at (916) 322-6020.

## **COSTS TO PUBLIC AGENCIES AND TO BUSINESSES AND PERSONS AFFECTED**

The determinations of the Board's Executive Officer concerning the costs or savings necessarily incurred in reasonable compliance with the proposed regulatory action are presented below.

The Executive Officer has determined that the proposed regulatory action will not create costs or savings, as defined in Government Code section 11346.5(a)(6), to any state agency or in federal funding to the state, costs or mandate to any local agency or school district whether or not reimbursable by the state pursuant to part 7 (commencing with section 17500, division 4, title 2) of the Government Code, or other nondiscretionary costs or savings to local agencies.

In preparing the regulatory proposal, the staff has considered the potential economic impacts on private persons and businesses. The Executive Officer has determined that the proposed regulatory action will not have a significant cost impact, as defined in Government Code section 11346.5(a)(9) on directly affected private persons or businesses. The amendments are generally designed to provide refiners and gasoline

distributors with more flexibility in complying with the CaRFG standards, and as such should not result in cost increases. For instance, refiners would not be expected to use the CARBOB model option if it will increase costs. The new specifications for denatured ethanol should help assure a reliable product, enabling refiners to better predict the necessary properties of the reformulated blendstock to be blended with ethanol and avoid the possibility of ethanol adding unanticipated levels of sulfur. In a survey by an ethanol producers trade association, over half of the respondents reported they currently produce denatured ethanol that meets the proposed specifications, and with careful selection of the denaturant, a significant portion of the remaining producers would be able to meet the specification.

The Executive Officer has determined that the proposed regulatory action will not have a significant adverse economic impact on businesses including the ability of California businesses to compete with businesses in other states. In accordance with Government Code section 11346.3, the Executive Officer has determined that the proposed regulatory action will not affect the creation or elimination of jobs within the State of California, the creation of new businesses or elimination of existing businesses within California, or the expansion of businesses currently doing business within California. An assessment of the economic impacts of the proposed regulatory action can be found in the Staff Report.

The Executive Officer has also determined, pursuant to Government Code section 11346.5(a)(3)(B), that the proposed regulatory action will affect small business.

Before taking action on the proposed regulatory action, the Board must determine that no alternative considered by the agency would be more effective in carrying out the purpose for which the action is proposed or would be as effective and less burdensome to affected private persons than the proposed action.

### **SUBMITTAL OF COMMENTS**

The public may present comments relating to this matter orally or in writing at the hearing, and in writing or by e-mail before the hearing. To be considered by the Board, written submissions must be addressed to and received by the Clerk of the Board, Air Resources Board, P.O. Box 2815, Sacramento, CA 95812, or 2020 L Street, 4<sup>th</sup> Floor, Sacramento, CA 95814, no later than 12:00 noon, November 15, 2000, or received by the Clerk of the Board at the hearing. To be considered by the ARB, e-mail submissions must be addressed to [crfg300@listserv.arb.ca.gov](mailto:crfg300@listserv.arb.ca.gov) and received at the ARB no later than 12:00 noon, November 15, 2000, so that ARB staff and Board members have time to fully consider each comment.

The Board requests, but does not require, that 30 copies of any written statement be submitted and that all written statements be filed at least 10 days prior to the hearing. The Board encourages members of the public to bring to the attention of staff in



advance of the hearing any suggestions for modification of the proposed regulatory action.

### **STATUTORY AUTHORITY AND REFERENCES**

This regulatory action is proposed under that authority granted in sections 39600, 39601, 43013, 43013.1, 43018, 43101, and 43830, Health and Safety Code, and *Western Oil and Gas Ass'n. v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975). This regulatory action is proposed to implement, interpret, and make specific sections 39000, 39001, 39002, 39003, 39010, 39500, 39515, 39516, 41511, 43000, 43013, 43013.1, 43016, 43018, 43021, 43830, 43830.8 and 43101, Health and Safety Code, and *Western Oil and Gas Ass'n. v. Orange County Air Pollution Control District*, 14 Cal.3d 411, 121 Cal.Rptr. 249 (1975).

### **HEARING PROCEDURES**

The public hearing will be conducted in accordance with the California Administrative Procedure Act, title 2, division 3, part 1, chapter 3.5 (commencing with section 11340) of the Government Code.

Following the public hearing, the Board may adopt the regulatory language as originally proposed, or with nonsubstantial or grammatical modifications. The Board may also adopt the proposed regulatory language with other modifications if the text as modified is sufficiently related to the originally proposed text that the public was adequately placed on notice that the regulatory language as modified could result from the proposed regulatory action, including but not limited to other small refiner provisions; in such event the full regulatory text, with the modifications clearly indicated, will be made available to the public, for written comment, at least 15 days before it is adopted. The public may request a copy of the modified regulatory text from the Board's Public Information Office, 2020 L Street, Sacramento, California 95814, (916) 322-2990.

CALIFORNIA AIR RESOURCES BOARD

MICHAEL P. KENNY  
EXECUTIVE OFFICER

Date: September 19, 2000